

What is Acute Respiratory Distress Syndrome?

Acute Respiratory Distress Syndrome (ARDS) is a life threatening problem in which the lungs are severely injured. Inflammation (*swelling*) occurs throughout the lungs. In the lung tissue tiny blood vessels leak fluid and the air sacs (*alveoli*) collapse or fill with fluid. This fluid buildup keeps the lungs from working well.

Persons with this problem will have trouble getting

enough oxygen in and removing carbon dioxide from the body, and become short of breath. Persons with ARDS must be given extra oxygen and will usually need the help of a mechanical ventilator (*respirator*) to breathe. With medical care, many people with ARDS survive and recover. However, about 40 % of people with ARDS die from the syndrome, even with intensive treatment.

Who gets ARDS?

It is estimated that ARDS affects about 150,000 Americans per year. ARDS can occur in many situations, though it often affects people who are being treated for another serious illness. A person can develop ARDS even if he or she has not had lung disease or a lung condition in the past.

What causes ARDS?

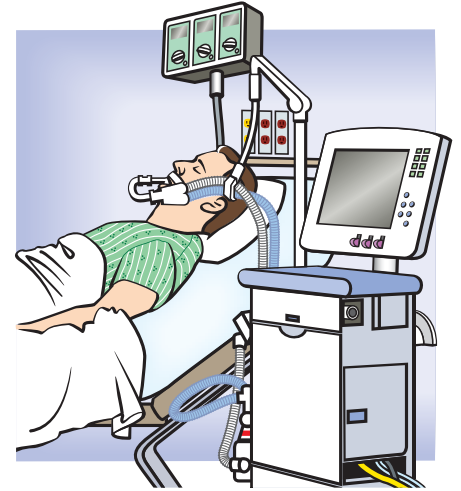
The causes of ARDS are not well understood. ARDS develops from a sudden injury, either direct or indirect. Examples of common injuries that are direct include: pneumonia, inhaling one's vomit (called *aspiration*), breathing in harmful fumes or smoke, and chest trauma, for example, a severe blow to the chest or other accident that bruises the lungs. Examples of common injuries that are "indirect" (associated with problems occurring in other parts of the body) include: severe and widespread bacterial infection in the body (called *sepsis*), severe injury to the body that causes a low blood pressure, bleeding that requires blood transfusions, and inflammation of the pancreas (called *pancreatitis*).

What are the symptoms of ARDS?

People with ARDS generally have one or more of the following symptoms: shortness of breath, cough (often with white or pink frothy sputum), fatigue, fever, or abdominal pain (in pancreatitis).

How is ARDS diagnosed?

There are a number of tests the health care team may do to see if a person has ARDS such as a chest X-ray, blood



tests, and evaluation of the blood or phlegm to determine infection.

It can be difficult to diagnose ARDS in people who have underlying medical problems that cause similar symptoms. Pneumonia can share many of the same symptoms as ARDS and may progress to ARDS.

How is ARDS treated?

At present, there is no specific treatment for ARDS. Treatment consists of two goals, first to treat any medical problem that led to the lung injury and second, to support the person's breathing (usually with a respirator) until the lungs heal. Most people with ARDS are treated in the intensive care unit (ICU) or critical care unit (CCU) of a hospital.

Therapies commonly used for ARDS include:

- Breathing support from a mechanical ventilator (respirator) combined with oxygen therapy (See ATS Patient Information Series fact sheets on Mechanical Ventilation and Oxygen Therapy).
- Medicines to keep the person calm and comfortable while on the ventilator. The person may be given medicine to keep them sleepy and control their pain so that they can rest and recover. Sometimes medicine is used to temporarily relax the person's breathing muscles. This allows the respirator to deliver the optimal amount of oxygen and air into the lungs.
- Other medicines that may be needed include antibiotics (to treat bacterial infections), vasopressors (to maintain blood pressure), diuretics (to treat excess fluid) or blood thinners (to prevent blood clots).
- Sometimes a person may be positioned face down (prone) for periods of time to help the lungs work better.
- While on a ventilator a person cannot eat by mouth, so nutrition is usually given with a feeding tube placed

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through the nose and down into the stomach or small intestine.

- If a person needs support from a ventilator for a longer time or has problems with his or her airway, a tracheostomy, or a surgical opening in the neck, may be done. (See ATS fact sheet on Tracheostomy).

What is an ICU and what can I expect to see in the Unit?

Intensive care units (ICU) are areas in the hospital where the most seriously ill patients are cared for by a specially trained health care team. The team includes doctors, nurses, respiratory therapists, nutritionists, physical therapists, pharmacists, psychologists, social workers, and clergy. The ICU team works closely together to provide the best possible care. Patients in the ICU are often connected to a variety of machines, monitors and tubes, and while it can be overwhelming to see so many pieces of equipment, each item does its job to help the person recover.

What complications may occur with ARDS?

- A lung injury such as a pneumothorax (collapse of part or all of one or both lungs) may occur from the mechanical ventilator. This may require the insertion of a chest tube (*thoracostomy tube*) to reinflate the lung (See ATS fact sheet on Chest Tube Thoracostomy)
- Infections can develop that will need to be treated with antibiotics.
- Mental confusion may occur in the ICU (called *ICU delirium*). Confusion may occur due to variety of factors including effects from medications, lack of sleep, pain, effects of infections or lack of oxygen being delivered to the body. This usually improves or resolves with time as the person gets better.
- Damage to major organs (kidney, heart, liver, brain, blood) may occur due to effects of severe infections or lack of oxygen being delivered throughout the body. Sometimes even with intensive care and use of a ventilator, the lungs are too damaged to deliver enough oxygen. Damage to any of these major organs can be very serious and require additional treatment. Having many organs functioning poorly results in a greater risk of death.

Is ARDS fatal?

ARDS is a serious, sometimes fatal medical problem that can also be very unpredictable. Some people recover within a short period of time, while others may not recover for weeks or months. Some people have no complications at all and others seem to develop many. Some people with ARDS die quickly, while others die after a prolonged illness. The ups and downs of this critical illness may seem like an “emotional rollercoaster” for patients, families and friends. Yet, many people do survive. It is important for family and friends to remain hopeful, and

seek guidance about how they can help promote healing. It is also important that family members take care of themselves to avoid getting too tired or worn down. Talking with the medical team to understand what is happening and what might be expected day to day may be helpful.

After leaving the hospital, the ARDS survivors may need help while recovering at home though the amount of help needed will vary. They may need oxygen (temporarily or permanently) or physical or occupational therapy. They may also continue to experience the following problems (temporarily or permanently): shortness of breath, cough, phlegm or sputum production from the lungs, hoarseness, lack of energy and loss of stamina, muscle weakness, anxiety, depression of post traumatic stress disorder (PTSD).

A person recovering from ARDS will need check-ups with his or her health care provider, who will monitor their improvement, and check their lung function on a regular basis. The health care provider may also refer the person to a pulmonary specialist or a pulmonary rehabilitation program to help him or her regain stamina (See ATS fact sheet on Pulmonary Rehabilitation).

Sources:

ATS Primer on Critical Care
www.thoracic.org

ARDS Foundation: Facts about ARDS
www.ardsusa.org/ptinfacts.htm

ARDS Support Center: Understanding ARDS
www.ards.org/learnaboutards/

NHLBI: ARDS
www.nlm.nih.gov/health/dci/Diseases/Ards/

Rx Key Points

- ✓ ARDS is a serious life threatening problem that requires intensive care.
- ✓ Injury to the lungs may be corrected quickly or require weeks to months of treatment.
- ✓ Family members and friends of a person with ARDS generally have many questions. Write down your questions and talk regularly with the health care team.
- ✓ Support your loved one by learning what you can do to promote his or her recovery.

Doctor's Office Telephone:
